Remarks

Claims 1-66 were pending in the application prior to the above amendments. Claims 1, 4-6, 14, 17, 26, 29, 38, 39, 41 and 50-66 are amended to more particularly point out and distinctly claim Applicant's invention. Claims 12, 24, 36, and 48 are canceled.

The Examiner objected to the disclosure for informalities. As amended, the Examiner's objections are believed overcome.

The Examiner objected to Claims 2, 5, 6, 12, 24, 39, 48, and 59 for informalities. As amended, the Examiner's objections are believed overcome.

The Examiner rejected Claims 1-6, 8-19, 21-31 and 33-37 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,298,083 ("Westcott"). With respect to Claims 1, 14 and 26, the Examiner states:

> Regarding claims 1, 14 and 26, Westcott et al. disclose in Fig. 8, a spread spectrum detector where a signal is received, a correlator 73 generates a plurality of correlation values based on the signal and a code generated by reference code generator 77, and an accumulation block 74, shown in detail in Fig. 12, includes multipliers 110 generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value that indicates a degree of correspondence of the code with the signal (see col. 13, line 1 to col. 14, line 17).

Applicant respectfully traverses the Examiner's rejection. As amended, Claims 1 recites:

> 1. (currently amended) A method for a spread spectrum detector, comprising the steps of:
>
> receiving a spread spectrum modulated signal having a Doppler shift error imposed by movement

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between a signal source and a receiver;

producing a plurality of complex first correlation values based upon the signal, a carrier doppler shift, and a code;

generating a plurality of complex second correlation values respectively from the first correlation values, wherein generating includes combining a correction for the Doppler shift error with each of the first correlation values to produce the second correlation values; and

integrating the second correlation values to derive a complex third correlation value that indicates a degree of correspondence of the code with the signal.

(emphasis added)

Thus, Claim 1 recites that the first correlation values are based on a carrier doppler shift and a correction for the Doppler shift error is applied to the first correlation values to obtain the second correlation values. In contrast, Westcott's col. 13, line 1 to col. 14, line 17 merely recites the process of obtaining a set of correlation values based on a set of hypothesized carrier doppler shifts. Westcott neither discloses nor suggests applying a correction to the Doppler shift error to the first correlation values to achieve the second set of correlation values. As disclosed in Applicant's Specification, at lines 21-26, the correction minimizes or eliminate the Doppler shift error imposed by relative motion between the satellite and receiver. Thus, Applicant respectfully submits that Claim 1 and its dependent Claims 2-6 and 8-11 are each allowable over Westcott. Claims 13, 14, 25-26, and 37 and their respective dependent Claims 15-19, 21-23, 27-31, and 33-35, each likewise including limitations corresponding to those discussed above with respect to Claim 1, are thus also believed allowable over Westcott. Reconsideration and allowance of Claims 1-6, 8-11, 13-19, 21-23, 25-35 and 37 are therefore requested.

The Examiner rejected Claims 38-43 and 45-49 under 35 U.S.C. § 103(a) as being

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unpatentable over Westcott. Applicant respectfully traverses the Examiner's rejection. Claim 38 recites:

> 38. (currently amended) A computer readable medium having a program for operating a spread spectrum detector, the program comprising:
>
> first logic configured to receive a spread spectrum modulated signal having a Doppler shift error imposed by movement between a signal source and a receiver;
>
> second logic configured to produce a plurality of complex first correlation values based upon the signal, a carrier doppler shift and a code;
>
> third logic configured to generate a plurality of complex second correlation values respectively from the first correlation values wherein generating includes combining a correction for the Doppler shift error with each of the first correlation values to produce the second correlation values; and
>
> fourth logic configured to combine the second correlation values to derive a complex third correlation value that indicates a degree of correspondence of the code with the signal.

As discussed above with respect to Claim 1, these limitations are neither disclosed nor suggested by Westcott. Accordingly, Claim 38 and its dependent Claims 39-43 and 45-47 are allowable over Westcott. Claim 49, which also recites corresponding limitations, is also allowable over Westcott. Reconsideration and allowance of Claims 38-43, 45-47 and 49 are therefore requested.

The Examiner rejected Claims 7, 20, 32 and 44 under 35 U.S.C. § 103(a) as being unpatentable over Westcott in view of U.S. Patent 6,373,882 ("Atarius"). The Examiner states:

> 37. Regarding claims 7, 20, 32 and 44, Westcott et al. disclose a spread spectrum detector comprising a searcher

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for generating correlation values, as disclosed above, but do not disclose that the correlation values are produced by a matched filter.

38. However, it is well known in the art to use a matched filter in a searcher. Further, Atarius et al. disclose in column 5, lines 57-63 that searchers using matched filters and those using correlators are well recognized art equivalents. Therefore, it would have been obvious to one of ordinary skill in the art to use a matched filter in the searcher of Westcott et al. as they are art recognized equivalents.

Applicant respectfully traverses the Examiner's rejection. Claim 7, 20, 32 and 44 each depend from a corresponding one of parent Claims 1, 14, 26 and 38 and are therefore each allowable over Westcott for the reason stated above with respect to their corresponding parent claims. As Atarius does not cure Westcott's deficiencies, Claims 7, 20, 32 and 44 are thus each allowable over the combined teachings of Westcott and Atarius. Reconsideration and allowance of Claims 7, 20, 32 and 44 are therefore requested.

The Examiner rejected Claims 50-63 and 66 under 35 U.S.C. § 103(a) as being unpatentable over Westcott in view of various "Krasner Patents" (i.e., U.S. Patents 5,825327, 5,945,944, 5,831,574, 5,884,214, 5,874,914, 6,016,119, 5,781,156, 5,841,396 and 6,002,363). Applicant respectfully traverse the Examiner's rejections. For example, Claim 50 recites:

50. (Currently amended) A GPS receiver, comprising:

a first GPS antenna coupled to a digital memory, the digital memory storing first digitized signals obtained through the first GPS antenna;

a second GPS antenna coupled to the digital memory, the digital memory storing second digitized signals obtained through the second GPS antenna;

a digital processor coupled to the digital memory, the digital processor processing the first digitized signals after being stored in the digital memory to provide the first position information and processing the second digitized signals after being stored in the

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digital memory to provide second position information;

a receiver configured to receive a spread spectrum modulated signal having a Doppler shift error imposed by movement between a signal source and a receiver;

a multiplier configured to produce a plurality of complex first correlation values based upon the signal, a carrier doppler shift, and a code;

a phase shifter configured to generate a plurality of complex second correlation values respectively from the first correlation values, wherein generating includes combining a correction to the Doppler shift error with each of the first correlation values to produce the second correlation values; and

an integrator configured to integrate the second correlation values to derive a third correlation value that indicates a degree of correspondence of the code with the signal.

(emphasis added)

As discussed above, Westcott's col. 13, line 1 to col. 14, line 17 merely recites the process of obtaining a set of correlation values based on a set of hypothesized carrier doppler shifts. Westcott neither discloses nor suggests applying a correction to the Doppler shift error to the first correlation values to achieve the second set of correlation values. The Krasner '327 patent, upon which the Examiner relied for his rejection of Claim 50, does not cure Westcott's deficiencies. Thus, Applicant submits that Claim 50 is allowable over the combined teachings of Westcott and the Krasner '327 patent. For substantially this same reason, each of Claims 51-63 and 66 are allowable over the combined teachings of Westcott and any of the Krasner Patents. Reconsideration and allowance of Claims 50-63 and 66 are therefore requested.

The Examiner rejected Claims 64 and 65 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,999,124 ("Sheynblat") in view of Westcott. The

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Examiner states:

87. Sheynblat `124 discloses a method for processing position information with all of the limitations of claim 64 (see '124 Patent, claim 1) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values, and combining the second correlation values to generate a third correlation value.

88. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17). 89.It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Sheynblat to compensate for Doppler shift.

90. Sheynblat '124 discloses a method for processing position information in a digital processing system including all of the limitations of claim 65 (see '124 Patent, claim 12) except producing first correlation values using the signal and a code, generating second correlation values from the first correlation values, and combining the second correlation values to generate a third correlation value.

91. Westcott et al. disclose in Fig. 8, a spread spectrum detector comprising a correlator 73 for generating a plurality of correlation values based on a signal and a code generated by reference code generator 77, and an accumulation block 74 having multipliers 110 for generating a plurality of complex second correlation values from the first correlation values by combining the first correlation values with a mixing signal MS output by generators 111 via a look-up table using the value PHASE which represents a basic Doppler offset, and the second correlation values are accumulated in stages 114 and 117 to provide a third correlation value indicating a degree of correspondence of the code with the signal (col. 13, line 1 to col. 14, line 17).

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92. It would have been obvious to one of ordinary skill in the art to use the detector of Westcott et al. in the receiver of Sheynblat to compensate for Doppler shift.

Applicant respectfully traverse the Examiner's rejection. Claims 64 and 65 each recite, in pertinent parts:

> ... receiving a signal having a Doppler shift error imposed by movement between a signal source and the GPS receiver;
>
> producing a plurality of complex first correlation values based upon an SPS signal, a carrier doppler shift and a code;
>
> generating a plurality of complex second correlation values respectively from the first correlation values, wherein generating includes combining a correction for the Doppler shift error with each of the first correlation values to produce the second correlation values; and
>
> combining the second correlation values to derive a complex third correlation value that indicates a degree of correspondence of the code with the signal.
>
> (emphasis added)

As the Examiner points out, Sheynblat does not disclose providing the first and second correlation values and, as explained above, Westcott neither discloses nor suggests applying a correction to the Doppler shift error to the first correlation values to achieve the second set of correlation values. Thus, the above-quoted limitations are neither disclosed nor suggested by either of the cited references. Claims 64 and 65 are therefore each allowable over the combined teachings of Sheynblat and Westcott. Accordingly, reconsideration and allowance of Claims 64 and 65 are requested.

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Therefore, all pending claims (i.e., Claims 1-11, 13-23, 25-35, 37-47, 49-66) are believed allowable. Their allowance is therefore requested. If the Examiner has any question regarding the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant at (408)-392-9250.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on October 7, 2004.

Attorney for Applicant(s) Date of Signature

Respectfully submitted,

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